OCTOBER 1952

FIREMEN

FIFTY-SEVENTH YEAR • NATIONAL FIRE PROTECTION ASSOCIATION

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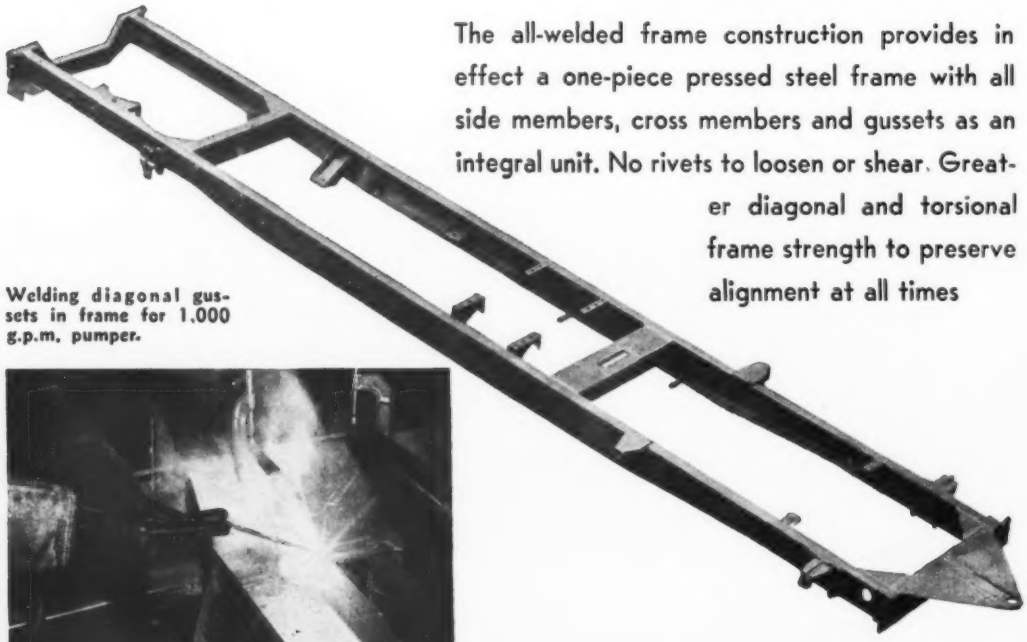

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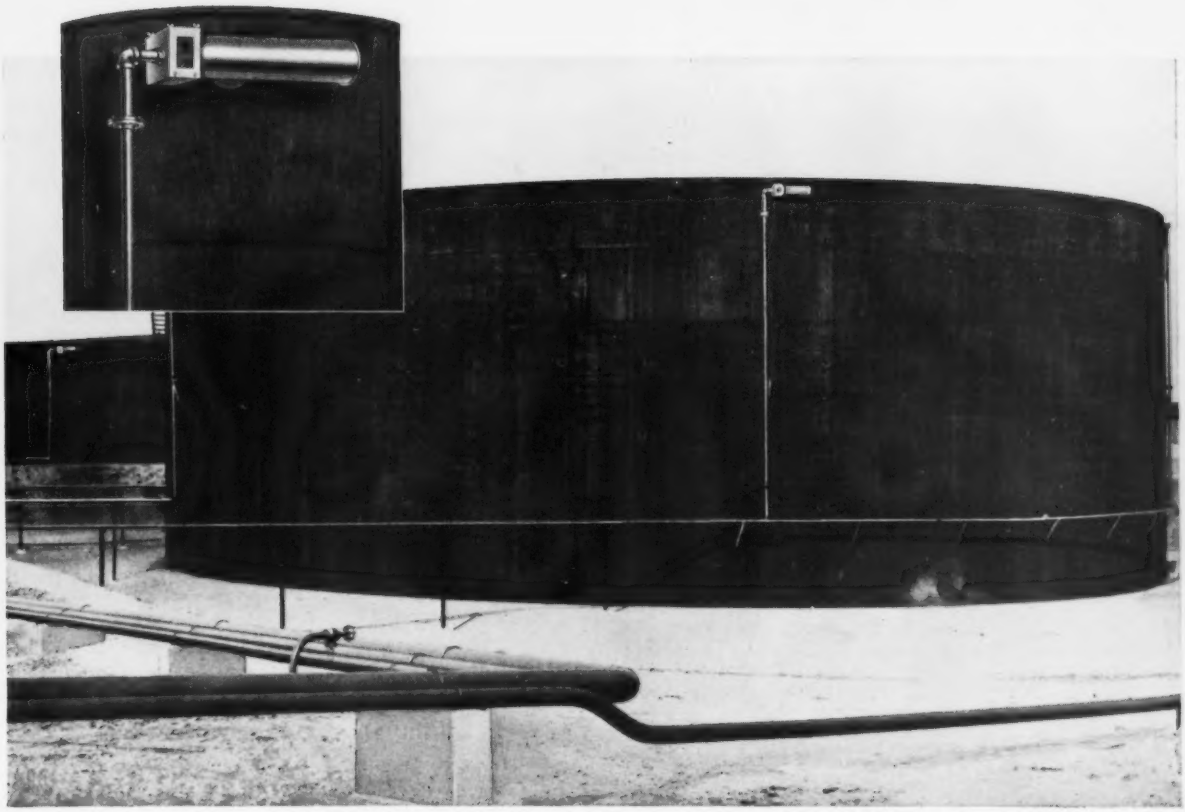

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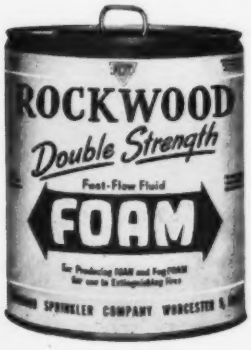

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Firemen

Volume 19 — Number 10

WARREN Y. KIMBALL — EDITOR
PAUL R. LYONS — ASSOCIATE EDITOR
HENRY S. GERE — ADVERTISING MANAGER

Published monthly for the fire service members of the
NATIONAL FIRE PROTECTION ASSOCIATION

A VOLUNTARY NON-PROFIT ORGANIZATION
60 BATTERYMARCH ST., BOSTON 10, MASS.

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Fitness for Fire Fighting

Recently the Board of Commissioners of a large city backed up the ruling of Fire and Police Surgeons that a man with one "hammertoe," even though otherwise qualified and already possessing fire service experience in a neighboring community was unfit to be a city fire fighter.

Even though in a certain large department one of the doughtiest fire fighters we have known happened to have a hammertoe, we doubt if any reader of FIREMEN will quarrel with the right of any municipality to require the highest physical standards for its applicants for the rigorous duties of fire fighting. After all, physical fitness may be the difference between life and death not only for the individual fire fighter, but his comrades and the people he serves. In fact, some leading fire departments require daily calisthenics and encourage sports and athletic activities to help keep their members in trim during the years devoted to fighting fire.

In selection of men the volunteer fire service has one advantage. Volunteer members belong because of their love of the fire service and of the fellowship it provides. Their physical standards for individual members may shy from the Adonis type of physical perfection of the young professional fire fighter or athlete, but any deficiency in that department may be more than made up by the volunteers' zeal for the cause to which they have dedicated themselves. In addition, a large proportion of the volunteers are working tradesmen whose daily toil gives them a degree of physical tone that the paid fire fighter usually must seek in the gymnasium.

We can offer only this consolation to the candidate with the hammertoe. If he can pass a standard physical examination such as would be required for a life insurance policy or for service in the armed forces, he would be welcomed in many volunteer fire departments provided that he has a brave heart and a stomach for fire fighting as an unpaid public service.

Cover Picture

This month's cover United Press Photo) shows fire destroying the Logan Dikie barn in West Hartford, Vermont, on August 17. While workers were moving hay in the barn a pitchfork struck and broke an unprotected light bulb. Hay ignited and employees fought the fire for twenty minutes before notifying the fire department. When apparatus arrived the 3-story wooden barn was totally involved and loss amounted to an estimated $60,000.

Figures compiled by the NFPA Fire Record Department indicate that between 20,000 and 25,000 barns yearly are involved by fire, with annual losses amounting to approximately $40,000,000.

Members of rural fire departments are aware of the dangers inherent in barn construction and storage. During Fire Prevention Week and the months following, members of such fire departments may refresh their memories on farm fire safety by consulting NFPA No. 223 — Fire Protective Construction on the Farm, which may be found in Volume IV of the National Fire Codes.

IAFC Report on Chiefs' Salaries

At the International Association of Fire Chiefs' 79th Annual Conference held in Boston in August the Committee on Salaries, headed by Chief William Fitzgerald of Seattle, Washington, presented an extremely interesting report on the subject of fire chiefs' salaries. The report indicated that the average salary for 1,008 fire chiefs during 1952 is $4,814 and that 51.3 per cent of the chiefs have received an increase in pay during 1952 following publication of last year's report of the Committee on Salaries. The report further indicated that only 12 per cent of the chiefs are paid $6,500 or more and recommends minimum salaries in various population ranges varying from $11,000 minimum for cities of over one-half million to $5,000 minimum for cities under 10,000 population. It was indicated that in the past ten years the rank and file fire fighters' salaries have increased 60 per cent but fire chiefs only 42 per cent. Actually, the difference is greater because of larger withholding taxes on the higher salaries.

"Eye-Catching" During Fire Prevention Week
OCTOBER 5-11, 1952

by Paul R. Lyons, Associate Editor

THE President of the United States, the Governor-General of Canada, and governors of the several states each year lend authority and support to Fire Prevention Week by official proclamation. Yet members of the fire service are well aware that it takes more than "official proclamation" to imbue the American public with enthusiasm for fire prevention and fire safe practices for a prolonged period.

That is one of the reasons that Fire Prevention Week is unanimously accepted as the time for launching year round fire prevention programs. Efforts of all fire service members are combined to make the Week as colorful as possible with the hope that the impressions given to the public will serve as the opening "salvo" of an effective campaign.

Entries submitted to the Fire Prevention Week Contest sponsored by the NFPA illustrate the ingenuity with which many fire departments tackle the problem of "catching the public's eye." (See September, 1952, FIREMEN for story on Fort Wayne, Indiana, last year's Grand Award Winner). Follow-up activities may include a concerted drive on a particular form of fire hazard, such as the drive conducted by the Memphis, Tennessee, Fire Department, headed by Chief John C. Klinck. Deaths from oil stove fires in that city had risen to alarming proportions until fire department members launched a successful inspection and instructional program. (See September, 1952, FIREMEN).

The Fire Prevention Committee of the Baltimore County Volunteer Firemen's Association each year conducts a poster contest for school children during Fire Prevention Week. This poster drawn by Earlene Bennett of Catonsville High School, Catonsville, Maryland, was the winning entry of the 1951 contest.

THE most common "tool" used during fire prevention week is illustrated material. Posters, streamers, window display cards and envelope stuffers can be effective "eye-catchers" in the initial phases of a campaign. NFPA members each year purchase greater quantities of such materials prepared for Fire Prevention Week by the NFPA.

In addition to using such material, many fire departments and other organizations have found that drawing or painting contests for school children are effective means for focusing the attention of the community on a theme of fire prevention. (See illustration at left).

Putting Fire Prevention Week on the "participative" level for the public benefit is perhaps the most effective method of creating a lasting impression. In Pennsylvania, for example, the Fire Chiefs Association of Alleghany County, the Allegheny County Firemen's Association, and the Western Pennsylvania Association combine their efforts in annual fire prevention activities. These three groups operate in 21 counties through paid, part paid, and volunteer fire departments.

One of the most popular of the activities is a fire prevention essay contest. The three Associations and private business firms appropriate hundreds of dollars for prizes for winning entries. Properly conducted and coincided with fire prevention programs such contests can be an effective means of holding a community's attention for a considerable period.

PERHAPS the most forceful means of emphasizing fire prevention is through personal visits by members of fire departments to homes. Well-trained, neatly dressed fire fighters make a lasting impression when calling at the average residence. This visit is especially welcomed when the family realizes that it brings good will rather than censure for violation of some ordinance. Fire fighters have an excellent opportunity to deliver an effective fire prevention message by such personal contact and not only help to raise the standards of fire safety but also increase the stature of the department in the estimation of the home owner.

For such personal visits the NFPA has published a 24-page illustrated pamphlet designed to educate the home owner in fire safety. Titled "Preventing Home Fires" the pamphlet covers the many fundamentals of safe practices concerning smoking, electricity, flammable liquids, space heaters and instruction of children.

Copies of this publication may be obtained for only 25 cents each from the NFPA Executive Offices, 60 Batterymarch Street, Boston 10, Massachusetts. Generous discounts are allowed for quantity purchases.

"Preventing Home Fires" is the type of "eye-catcher" that fits in perfectly with Fire Prevention Week activities or extended fire prevention programs. Many fire departments have obtained copies specifically for the personal visits to homes by fire fighters. The dramatic illustrations and valuable information contained in "Preventing Home Fires" are the type of effective material that the home owner will read and act upon. Fire departments by using such illustrative material will find the task of educating the home owner much easier, in addition to finding the contents of the pamphlet invaluable for suggesting specific hazards that warrant attention during year-round inspection and fire prevention programs.

Good Stop with "Indirect Application" at Grain Elevator Fire

Pre-planning and efficient use of water can accomplish remarkable results as shown by this report and sketch submitted to the NFPA Fire Record Department by Chief Charles Roth, Jr., of Fire Department Headquarters, Dallas City, Oregon.

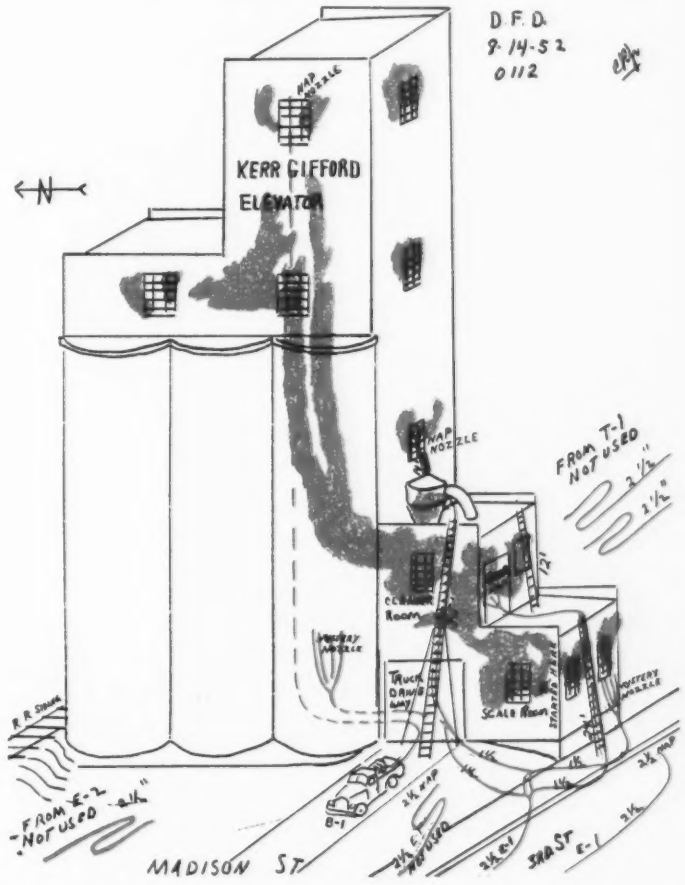
ON August 14, 1952 in Dallas City fire involved a grain elevator owned by the Kerr Gifford Company, Inc., of Portland, Oregon. The fire fighting problem presented was extremely interesting. Fire had spread through the elevator from the first floor up through the top of the headhouse. It was brought under control in a very short time using only 1½-in. lines and employing indirect application and atmospheric displacement. We have used this method for many years on interior structural fires and have enjoyed its advantages over the "solid stream" style of fire control.

The alarm for this fire was received at 0112. The first alarm assignment on this box was one 600 gpm engine, (E-1), one 750 gpm "quad", (T-1), one 75 gpm booster truck, (B-1) and all off-shift firemen, who with responding paid and call firemen made a total of 38 men.

The elevator is of concrete construction and occupies an area of 39 by 68 feet. The top of the headhouse is 90 feet above the ground and the 6 cylindrical storage tanks rise 55 feet above the ground. The distributing house on top of the tanks rises another 12 feet. Access to the headhouse is by a fixed vertical wooden ladder and by an electric powered lift.

On the south side of the elevator is a 1- and 2-story section housing the scales and garner bin. At the time of the fire there were about 35,000 bushels of wheat plus 17,500 bushels of other assorted grains in storage in the bins.

Housekeeping in this elevator was not exemplary. Due to a lack of a dust disposal system dust deposits at some places were more than a foot deep. The only fire protection consisted of a number of first aid extinguishers located throughout the elevator. On numerous occasions the fire department had recommended automatic sprinklers, standpipe systems, and an adequate dust disposal system, but these were never installed.



WHEN the writer arrived with the first apparatus, which was the booster truck, the fire had completely involved the scale room and had spread up through a wooden chute to the cleaner rooom on the second floor. Heavy smoke was coming from the windows throughout the headhouse, but the only visible flame was in the scales room. The fire, however, spread quickly through unprotected openings into the headhouse shaft and upward.

A fog applicator was attached to a NAP (Navy All-Purpose) booster nozzle and operated through an outside window into the scales room with good results. This was continued until one minute after arrival of first alarm companies, at which time it was shut down and removed.

ENGINE One laid a 2½-in. line fitted with a gated 2½-in. wye to get four 1½-in. lines into operation. This engine then located at a hydrant at Third and Madison Streets. The first two 1½-in. lines were fitted with Mystery nozzles equipped with shut-offs. The second two lines had NAP nozzles.

One line was stretched to an outside window of the scale room and a 30 degree fog was directed through the window. Atmospheric displacement in this room was immediately achieved. A second line was stretched to the underside of the headhouse shaftway. A 30 degree fog pattern was directed up the shaft which by now was fully involved. Almost immediate primary extinguishment was observed

(Continued on page 22)

Fire Storms

By Horatio Bond, NFPA Chief Engineer

From an address delivered for the Civil Defense Program of the 14th Annual Pennsylvania Fire School, Lewistown, Pa. August 7, 1952

THE center of the explosion of an A-bomb is very hot and from this source heat radiates to set fire to combustible materials. Fires may also occur from secondary effects of the blast of the bomb and involve entire cities.

When a fire starts in one building and spreads to a large number of others, it is known as a conflagration. Such a fire is burning in a ring the center of which is marked by buildings already burned. The movement of such a fire can be headed off in some cases by fire fighting but usually the fire burns out to an open space.

The war brought attention to another kind of fire, described as a fire storm, which occurs from a different set of conditions than those which produce a conflagration.

In the San Francisco conflagration of 1906, the largest which ever occurred in the United States, the fire burned in stages for a period of three days. By contrast, the wartime fire storm in Hamburg, in July 1943, had all of the buildings involved burning at the same time. Because they were all burning simultaneously, these building fires set up a strong column of rising air over the city which behaved exactly like the central column of swirling, rising air which is present in a storm.

What It is Like To Be in a Fire Storm

What does this fire threat mean to the individual? What is it like to be in a fire storm?

Suppose we visualize an A-bomb attack on a city. The alert sounds, and you take shelter. A bomb lands, not near enough to kill you but near enough to do considerable damage. Perhaps you think there will be other bombs so you stay in whatever shelter you have.

If the number of fires are few and the fire fighting is successful, not only in your neighborhood but in the entire area, you are safe. Perhaps your block has five fires and three are fought successfully. But the other two are raging and pretty soon the fires are spreading to other buildings. Meantime the same thing is happening in adjoining blocks.

The air begins to warm up, but you still should not consider the situation hopeless, as resolute fire fighting may still save the day. At some point, however, you realize the heat is no longer bearable. By this time it would be fortunate indeed if you could make your way out of the fire area.

If you were still in a shelter you would be conscious of increasing warmth. Soon, carbon monoxide from the fires would begin to mix with the air in the shelter. Before you would sense unbearable heat, you would slump over, dead of CO poisoning, or would have suffocated.

What Cities Can Have Fire Storms?

North American cities are made up principally of combustible buildings and buildings with combustible contents. There are different degrees of combustibility of our cities. It is perhaps sufficient to point out that congested areas like Manhattan are clearly bad. Cities like Los Angeles and Houston, which are spread out, offer a much less attractive fire target.

The areas of cities which could have fire storms may be easily mapped. The principal factor to identify is the density with which the buildings are distributed. The ratio of roof area to ground area can be calculated for any block or group of blocks. A fire storm is a possibility wherever this density exceeds 20 percent over an area of as much as a square mile.

It is by no means certain that a fire storm will always occur even where a fire storm is possible. Much depends upon the number of fires and the success with which they are fought. That is why it is going to be so important to reduce the amount of combustibles present and to organize for first-aid fire fighting.

What Can We Do?

In fire-storm areas shelters can be provided which will protect people to some degree from heat, nuclear radiation and the blast effects of an A-bomb. However, decisions about procedures to be employed for the protection of people in an area where a fire storm is possible must be taken in advance. There are three possible procedures.

The first of these is to depend upon people well-trained and well-equipped in a fire-guard organization which may be expected to control small fires. This program would be aimed at keeping the number of simultaneous small fires at a low figure. A fire storm is likely if a fire becomes established on a uniform pattern over the combustible area.

A second procedure is to tear down enough buildings in any city to reduce the general ratio of roof area to ground area below 20 percent. Any reduction of this ratio is helpful, even if the 20 percent figure is not reached. All high-density areas of combustible buildings should be studied to see what improvements can be made. The more open space, the better the chances of controlling fires and of survival.

A third possibility is to evacuate most of the people in the potential fire-storm area several days or weeks before attack. As a rule it must be assumed that conditions which make a fire storm possible will make post-raid evacuation impossible. Where fires cover several square miles of area, the people in the area cannot travel in fire-swept streets.

Fire Safety in the Atomic Age

Fire prevention and fire fighting are life-and-death matters in the Atomic Age. Between now and when another war comes, fire destruction will depend on how we build our cities and carry out our operations and our living. The following seven points are, I believe, the essentials of a program for fire safety in the Atomic Age:

(1) Dispersal and use of space for safety is the chief requirement.

SMALL SCALE FIRE STORM DEMONSTRATION

Burning candles on a board can approximately represent burning buildings. If only a few candles here and there are lit they set up air currents which cause other candles to light and soon the "fire storm" is burning briskly. This demonstration was developed by Ralph S. Healy, Civil Defense Engineer of the New York Telephone Company. Caution! The fire produced is a substantial one, not for novices to try and not for use at a lecture or demonstration in a place of assembly. Several water type extinguishers should be standing by.

(2) A radical reduction in combustible material must be achieved.

(3) Building construction must be principally fire-resistive types.

(4) Automatic fire protection of buildings by sprinkler systems will continue to be of major importance.

(5) There must be organization for first-aid fire fighting.

(6) Water for fire fighting must be stored in tanks, cisterns or reservoirs at the buildings where it will be used.

(7) Fire problems must receive day-to-day attention by owners and managers of buildings.

Defense by Space

Defense by space is simply a matter of not mooring all of your ships in one part of the harbor or all of the airplanes in one place on the airport. The same principle applies to buildings. Combustible buildings must be kept small and well-spaced.

In goods stored outdoors, as in lumber yards and storage depots, the sizes of piles must be limited, and generous space between piles must be provided. Area used for non-combustible storage, such as iron pipe and brick, can be counted as open space provided the storage of these items does not interfere with access for fire fighting in combustible storage.

Reduced Combustibles

The tip-off to imminence of an A-bomb attack is likely to be issuance of orders by civil defense authorities to remove all needless fire hazards like rubbish and litter from back yards and attics, the removal of dilapidated porches, fences and sheds and the replacement of combustible roof coverings wherever possible with asphalt shingles or other material which has a degree of fire resistance.

In normal times it has been customary to subject buildings to fire loads greatly in excess of what the buildings are able to resist. This is a luxury no longer tolerable. It will be necessary to set limits of fire loading which are not to be exceeded for each type of building construction.

For noncombustible factory buildings of the usual steel frame type, the fire loading should not exceed 40,000 British thermal units per square foot. In fire resistive construction, the loading should not exceed the fire resistance the building will provide. Instead of constructing buildings to resist heavy fire loads the loading should be kept down by spreading material over greater floor area. The top loading for 3-hour fire-resistive construction should be 240,000 British thermal units per square foot.*

Fire-Resistive Construction

Because an atomic bomb will set fire to combustible materials we will have to make wider use of fire-resistive types of construction. All unnecessary combustible features of buildings will have to be omitted.

In addition, it is necessary to make sure that fire-resistive construction is such that fire will not spread from floor to floor vertically or cannot spread very far horizontally. It is also necessary to make sure that the building layout is such that flue effect in courts and potential fire spread across courts and streets does not invalidate the horizontal compartmentation. By such measures, fire-resistive construction makes possible a degree of compartmentation which will reduce the chance of fire damage. A working rule is to provide a compartment in fire-resistive buildings for each 1,600,000,000 British thermal units of fire load.

Sprinkler Protection

Important buildings such as industrial plants and department stores now have sprinkler systems furnishing automatic fire protection. These systems reduce fire losses to something below 10 percent of what would otherwise be the case. If sprinkler protection is installed in a larger proportion of our buildings, the survival rate, both of buildings and people, against the fire effects of A-bombs will be high.

First-Aid Fire Fighting

Statistics show that peacetime fire fighting is a one-at-a-time operation on small outbreaks of fire. Hundreds, or even thousands, of fires all at once as in wartime produce a situation quite different.

The public fire companies will give a good account of themselves but the number of fire companies will never be such that they may be expected to get to all of the fires. A well-organized home army of citizens equipped with simple fire fighting equipment will be needed to successfully combat the many small fires.

It will be necessary to provide water in barrels or similar small reservoirs in or near all buildings. In addition, fire fighting tools must be provided consisting of water pails and a pump tank fire extinguisher or stirrup pump. The pump tank or stirrup pump should have about 35 feet of hose attached to it. Fire-fighting teams, of 3 or 4 people each, can do an excellent job as was demonstrated during the last war.

* One pound of ordinary fuel generates about 8,000 BTU. — Ed.

MAKING A GOOD JOB OF IT

BY WARREN Y. KIMBALL

A Suggestion for Better Nozzle Tip Sizes

THE idea previously has been advanced in FIREMEN that the nozzle tip is in effect a water meter that lets a given flow pass a certain definite pressure. With this basic fact in mind it seems strange that apparently little attempt has ever been made to coordinate the tip sizes furnished by nozzle manufacturers with the rated capacity of pumpers built by fire apparatus manufacturers under national standard specifications recognized by all leading fire service organizations.

Apparently, nozzle makers just bore out a cylinder of a given diameter in inches without regard to the gpm that such an opening will pass. They leave it to the fire departments to make the best use they can out of an unsatisfactory situation.

It has generally been agreed, and the fact has been substantiated by field experiment, that nozzle pressures in the 50 lb. range are the most satisfactory for 2½-in. hand lines and that nozzle pressures of 80 lbs. are desirable for heavy streams. The question then comes to mind, "Why not have nozzle diameters that will give the desired flows at these pressures?" There should be no need for any officer to say, for example, "Use the 1⅛-in. tip." Pump capacities are rated in intervals of 250 gallons. A 500 gpm pumper will give two such streams, a 750 pumper will give three, and a 1,000 gpm pumper four, and so on. These pumpers should be equipped with enough nozzles with 250 gpm tips to utilize these capacities.

At 200 lbs. pressure these pumpers deliver 70 percent of capacity. Seventy percent of 250 gpm is 175 gpm. Accordingly, each nozzle should have a second smaller tip giving this flow at 50 lbs. These tips could be designated Nos. 1 and 2. They should take care of all normal handline purposes. They would be approximately 29/32 and 1$\frac{3}{32}$ ins. respectively. If desired a No. 3 tip could be specified to give 350 gpm but it normally would be preferable to use heavy stream devices where such large flows are used.

Friction losses with these tips would be 8, 15, and 25 lbs. per 100 ft. respectively. Thus a 500 gpm pumper could handle two 250 gpm tips through 600 ft. lines or two 175 gpm tips through lines up to 1900 ft.

A very interesting advantage of these proposed nozzle tips is that it would not be necessary to reduce the number of streams when in series (pressure) operation. The size of the tip would merely be reduced from 250 gpm to 175 gpm. Exactly the same number of lines and the same nozzle pressure would be maintained. The new small size tip would still provide a much more effective stream than the present 7/8-in. tip.

SOME new tip sizes are also needed for heavy stream devices to relate them to the flows of pumpers at various pump pressures. Every pumper should have a heavy stream device capable of utilizing its capacity at both 150 and 200-lb. pressure ratings. The present 1⅜-in. tip (too little used) gives 500 gpm at 80 lbs. The 1¼-in. tip which gives 400 gpm at 80 lbs. can be discarded as not fitting pumper capabilities. Likewise the 1¼-in., 1¾-in., and 2-in. tips should all go as mongrels.

New heavy stream tips would be:

	Approx. Size	*GPM @ 80 Lbs.*
H-1	1⅜	500
H-2	1 5/8	700
H-3	1 15/16	1000
H-4	2¼	1250

By increasing nozzle pressures 5 to 15 lbs. these same tips would give 525, 750, 1100 and 1500 gpm making use of any additional pumper capacity available.

The heavy stream devices might best be made in three sizes each capable of being supplied by one Class A pumper of appropriate size. A small size for pumpers up to 750 gpm would have a 2-way siamese with 1⅜ and 1⅝-in. tips. A medium size with a 3-way siamese would be useful for pumpers up to 1000 gpm and would have an additional 1 15/16-in. tip. A jumbo size for super flows would need a 4-way siamese and would have a 2¼-in. tip replacing the 1⅜-in. tip.

How Suggested Nozzle Capacities at 50 Lbs. Fit Standard Pumper Ratings

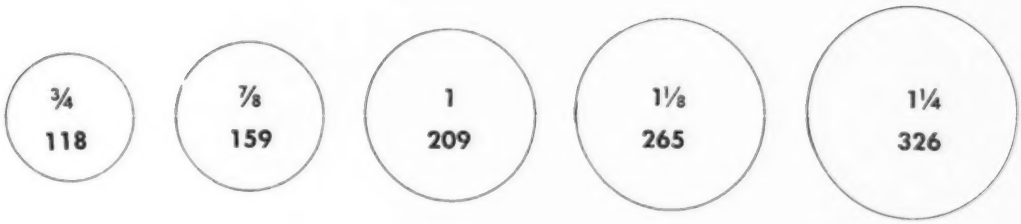
Pump Pressure	Pumper Ratings (Class A)		
	1000 GPM	750 GPM	500 GPM
100% Capacity (150 lbs.)	1000	750	500
No. of Nozzles	4-250	3-250	2-250
70% Capacity (200 lbs.)	700	525	350
No. of Nozzles	4-175	3-175	2-175
50% Capacity (250 lbs.)	500	375	250
No. of Nozzles	2-250	1-350 or 2-175	1-250

These heavy stream devices should have waterways permitting the flows called for by the nozzle tips with not over 5 lbs. loss in the device. Many heavy stream devices now in use cause excessive pressure losses due to waterways too small to service the nozzle tips.

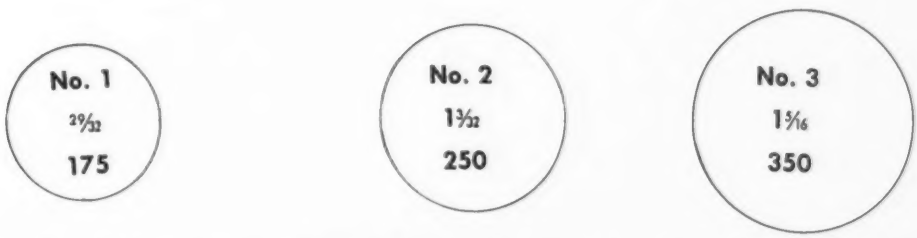
The advantages of the new tip sizes would include:

(1) A reduction in the number of tips required for effective use of pumper and hose capacities (less chance of getting the wrong tip), (2) Tips easily identified by number and flow, (3) Simplification of friction loss problems because of fewer tip sizes and because the 175 gpm tip would have only about half the friction loss of the 250 gpm tip, (4) Simplification in the making of flow tests for pumpers and water supplies by fire departments, (5) Small tips would be designed to give 70 percent of flow of large tips in keeping with pumper characteristics, (6) On hand lines tips Nos. 1 and 2 would be separated by 75 gpm intervals which are more significant than 50 gpm intervals, (7) Tips smaller than 175 gpm would be abandoned for 2½-in. hose as the smaller flows can better be applied through 1½-in. hose, (8) Tips for heavy streams would be reduced from 8 sizes to 4 related to pumper capacities at 150 and 200 lbs.; and (9) The danger of overloading pumpers and water supplies by use of excessive nozzle tip sizes would be minimized by tips tailored to pump capacities.

Old Sizes with GPM at 50 lbs. (Hand Lines).



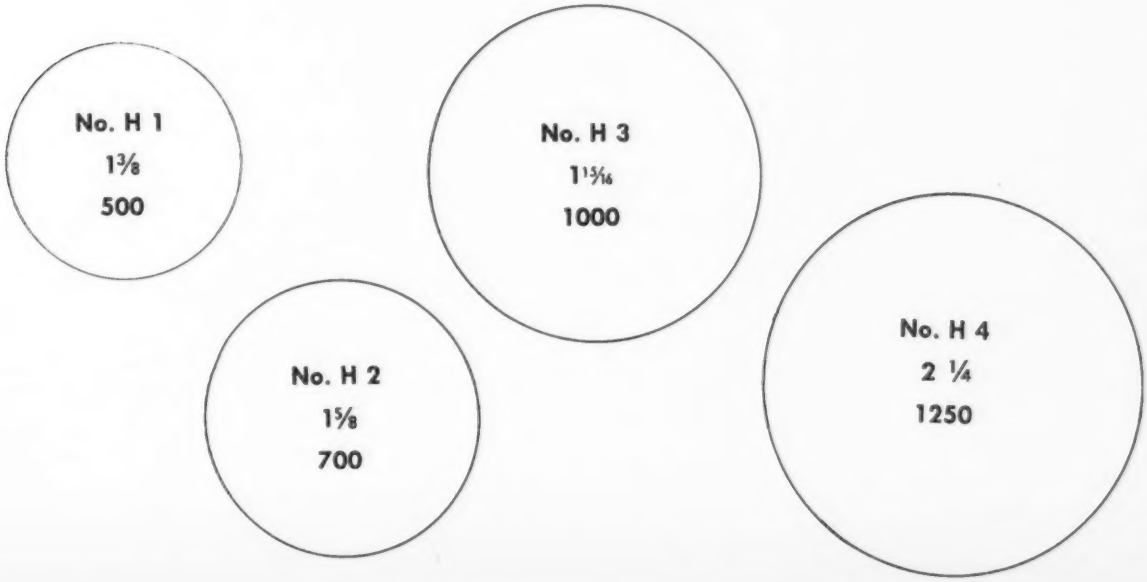
New Sizes with GPM at 50 lbs. (Hand Lines).



(Above) Five standard sizes of nozzles have been in use for 2½-in. fire hose. These are shown in actual size with their flows at 50 lbs. The three new tip sizes in the second row are suggested for 2½-in. hand lines to make the fire fighter's job more efficient.

(Below) Four new tip sizes are suggested to utilize pumper capacities at nozzle pressures of 80 to 100 lbs. The first three tips, on a single deluge set, (500, 700, and 1000), would use the full capacity of a 1000 gpm pumper at 150, 200, and 250 lbs. pumper discharge pressures. The H1 and H2 tips would utilize full rated capacities of 500 and 750 gpm pumpers respectively. The flows given below are at 80 lbs. nozzle pressure but additional capacity can be utilized by increasing nozzle pressures 10 to 20 lbs. Contrariwise, decrease of nozzle pressures 10 to 20 lbs. will reduce the flow without seriously affecting the caliber of the stream.

New Tip Sizes with GPM at 80 lbs. (Heavy Streams).



Methods of Artificial Respiration

By William D. Claudy, M.D.
Board of Police and Fire Surgeons, Washington, D. C.

Part 1. Watch for continuation of this article in future issues of FIREMEN.

FOR many years manual artificial respiration in this country has been standardized on the Schafer prone-pressure method. Recently considerable excellent research (1, 2, 3) has stimulated interest in this field and this has been furthered by the adoption of the method of Holger-Neilsen as the official Red Cross method. The Council on Physical Medicine and Rehabilitation of the American Medical Association, the American National Red Cross, the Armed Forces, Federal Civil Defense Administration, Public Health Services, Bureau of Mines, Boy Scouts and Girl Scouts of America, and American Telephone and Telegraph Company have all endorsed this method following a recommendation released December 3, 1951 by the American National Red Cross, National Research Council, Department of Defense, and the Public Health Services.

A curious and sometimes unfortunate situation has accompanied the evolution of artificial respiration and resuscitation in the United States. For many years the layman has been far in advance of the physician in his contact with the patient, not only physically but in his first aid interest (4). Thus resuscitation has become identified with lay rescue teams. This has served to retard professional interest while rescue squads have commenced to look upon the asphyxiated patient as their exclusive property. To add to the confusion, manufacturers of resuscitators designed to amplify and simplify the efforts of rescue squads have choked the field with mechanical robots, each fortified by unimpeachable scientific research frequently unintelligible to both salesmen and prospective purchasers.

In artificial respiration, professional and lay efforts should complement, rather than oppose each other. Since lay rescue squads usually reach a patient considerably in advance of professional medical help, they should be encouraged and instructed as fully as possible. Physicians should educate themselves in resuscitation procedures so that they may amplify and guide intelligently the efforts of the layman.

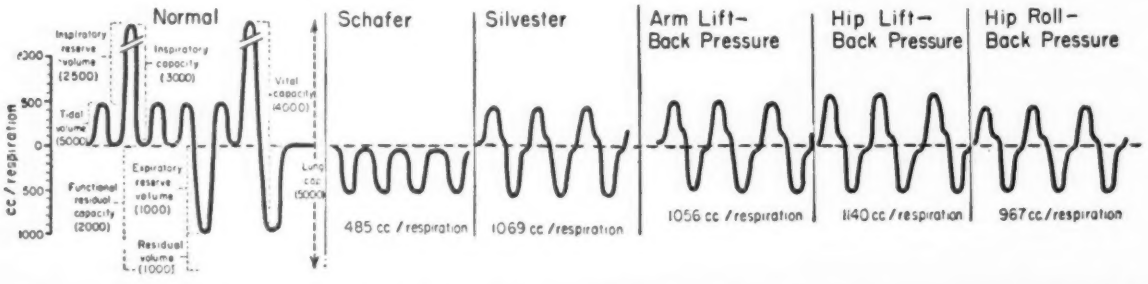
The methods of artificial respiration which have been utilized both here and abroad include:

1. The Silvester method, 1858.
2. Schafer prone-pressure method, 1903.
3. Eve rocking method, 1932.
4. Holger-Neilsen method, 1932.
5. Schafer-Neilsen drinker method, 1935.
6. Emerson hip-lift method, 1948.
7. Schafer, Emerson, Ivy hip-lift prone-pressure method and hip-roll prone-pressure method, 1948.
8. Gordon hip-lift back-pressure method and hip-roll back pressure method, 1950.
9. Mouth-to-mouth insufflation.

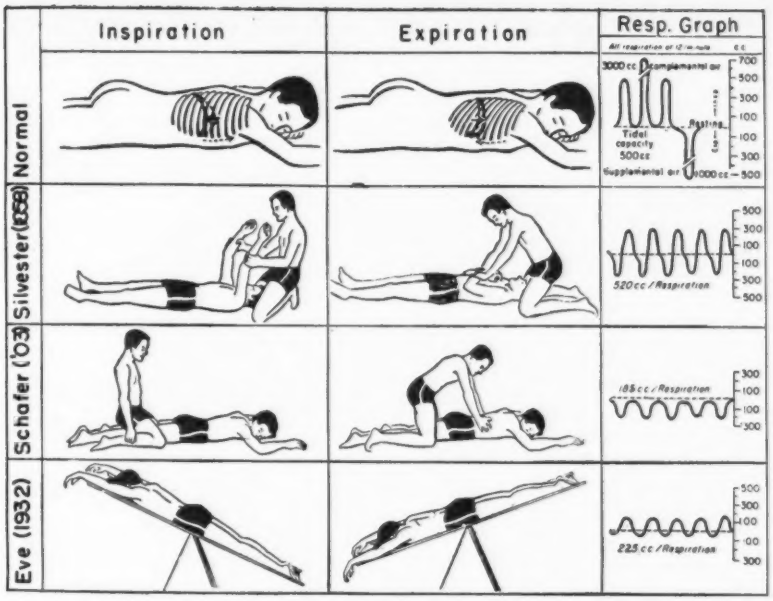
The accompanying illustrations demonstrate these methods together with the respiratory exchange obtained from each. The results of various researches have indicated that any push-pull method (Holger-Neilsen, Silvester, Schafer-Emerson-Ivy, Gordon) is superior to any single phase, push or pull, method.

The decision of the American National Red Cross to adopt the Holger-Neilsen arm-lift back-pressure method as their official method was dictated by many factors. The hip-lift back-pressure method gives a greater respiratory exchange (1056 c.c. for the arm-lift back-pressure and 1140 c.c. for the hip-lift back-pressure method) but is more fatiguing. The Red Cross will teach women and children to use this method, who will frequently apply it to individuals far heavier than themselves; for general use the arm-lift back-pressure method is, therefore, superior. In the case of Fire Departments, Police Departments and Rescue Squads however (5), there is usually adequate well-trained vigorous man-power; hence for these, it is probably preferable to use the hip-lift back-pressure method because of its greater respiratory exchange. The Schafer method, because of its poor air exchange, should be entirely discarded.

Occasions will arise where for one reason or another various methods will not be practical. The arm-lift method cannot be used if the arms and shoulders are broken, lacerated, or badly burned. Such an occasion arose recently in the District of Columbia Fire Department when a fireman was resuscitated by the use of the hip-lift back-pressure method after being rescued from a basement fire in which his arms and hands were so severely burned that the use of the arm-lift back-pressure method was impossible. Fractures of the thighs, hips, or rib cage might contraindicate the use of the hip-

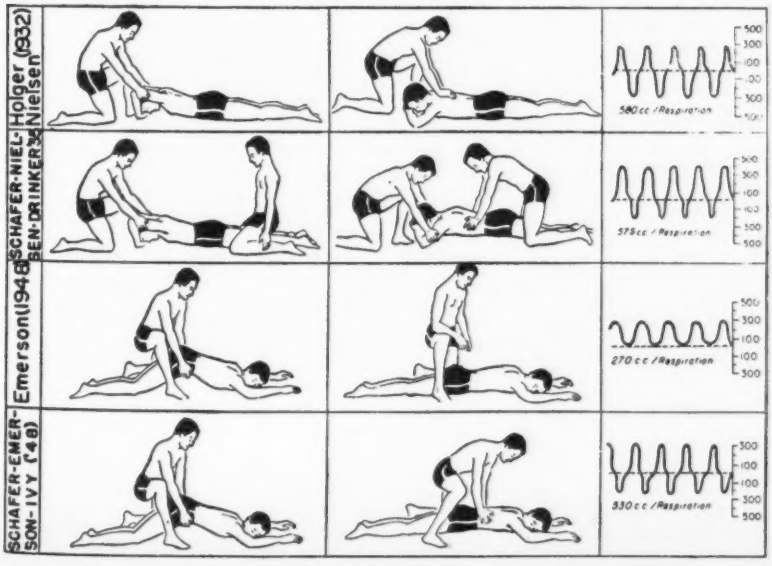


Comparison of tidal volumes with various manual methods of artificial respiration. Values noted are those obtained in series on curarized-anesthetized normal men in the University of Illinois studies.



lift back-pressure method. Under other circumstances (in the presence of severe abdominal wounds or where individuals are pinned in wreckage) neither method might be applicable, and the Silvester arm-lift chest-pressure method might be necessary. In still other instances only the head might be accessible and none of these methods would be useful Here mouth-to-mouth insufflation might be life saving. Any well-trained rescue team should be thoroughly familiar with at least these methods, and should have some familiarity with all procedures. These should include the hip-roll back-pressure method, which can be used as an adjunct to either the arm-lift back-pressure or hip-lift back-pressure methods, since it is nearly as efficient (1140 c.c. for hip-lift back-pressure method, 1056 c.c. for arm-lift back-pressure method, 967 c.c. for hip-roll back-pressure method) and less fatiguing.

Other variations might include the arm-lift chest-pressure method applied in bed (since ill people often must remain supine in bed); the arm-life back-pressure method applied in bed, on litters, on emergency room tables; the hip-lift back pressure method as applied by two or more operators, either in the conventional position or on tables or litters, and using various aids such as belts or towels to lift the hips; and the hip-roll back-pressure method used on bed or litter patients.



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Chief Treadwell Retires

ON August 13, 1952, Chief T. P. Treadwell of Fort Collins, Colorado, retired from the fire service and was succeeded by Assistant Chief Clifford Carpenter. Chief Treadwell, who has been appointed as Building Inspector for Fort Collins, had a distinguished career for more than 40 years in the fire service and served as Chief at Fort Collins for 22 years. For a number of years Chief Treadwell has been a member of the NFPA Committees on Firemen's Training and Fire Department Equipment. He was a graduate of the New York City Fire College and served as a member of the Denver, Colorado, Fire Department for a number of years before retiring as an Assistant Chief. After retiring from Denver Chief Treadwell served for 7 years as Chief at Deer-Trail, Colorado, before accepting appointment to reorganize the Fort Collins Fire Department. A resolution of the City Council of Fort Collins commended Chief Treadwell for his service during which the city won 21 consecutive first-place awards in the state for fire prevention and 18 times placed among the 10 top cities in the nation in fire prevention having won the Grand Award in 1937.

Tri-State Firemen Meet at Quaddick, Connecticut

APPROXIMATELY 750 persons gathered at Quaddick State Park near Thompson, Connecticut, on Sunday, Sept. 7th, for the 10th anniversary Tri-State Firemen's Meet, a gathering of volunteer fire departments from Connecticut, Massachusetts, and Rhode Island. The Tri-State meeting has become a demonstration and proving ground for progressive ideas connected with rural fire fighting and rescue work.

This year the Woonasquatucket Valley Firemen's League of Rhode Island showed how their League radio net could be used to direct rescue operations. A rescue boat equipped with a "handie-talkie" maneuvered in Quaddick Lake and was directed by observers in a plane communicating through various radio equipped fire trucks and chiefs' cars in the League. In another demonstration, the Brooklyn, Conn., fire department using a 12 watt mobile unit maintained communications with its base station at Willimantic 35 miles air-line distance.

U. S. Naval Training Station crews from Newport, R. I. demonstrated Navy air-crash trucks and various types of fire fighting equipment including a "Pyro-blender" wet water proportioner, manufactured by Aquadyne Corporation of New York City, foam equipment, and new Navy type portable "handie-billie" pumps capable of supplying two 2½-in. hose lines. A Navy sound truck from Quonset Point Air Station was provided for the meet.

A women's crew from Potterville, Conn., recruited to supplement depleted manpower during workdays, proved ability to drive, operate, and "man" the booster and 1½-in. fog lines of that department's new tank truck.

The Massachusetts Department of Conservation showed its forest fire weather forecasting methods and equipment, and one of that State's latest forest fire trucks. Connecticut Forestry men showed 1½-in. knapsack hose layouts from a State fire truck.

Engine 5 of the North Providence Dept. from Marieville demonstrated its new 750 gpm Ward-LaFrance pumper discharging two lines through its turret gun. The pumper was also used to show a 500 gpm adjustable fog stream from a 2½-in. Wornall fog nozzle. Also demonstrated by this company were the 3 gpm Foggit Nozzle as a booster nozzle top and the use of the 2½-in. Wornall nozzle on a hand line controlled by one man. It was shown that one man could handle up to 75 lbs. nozzle pressure with a 1-in. tip discharging 260 gpm.

Marieville, R. I., 750 gpm Ward LaFrance pumper delivering 500 gpm to Wornell nozzle used as fog tip on turret nozzle.

Asst. Chief George C. Adams, of Riverside, R. I., nationally known authority on water rescue gave a demonstration of rescue techniques with the assistance of the Greenville, R. I., rescue squad. This included work with grappling hooks, diving glasses and swim fins, and the correct use of the Scott Air-Pak fire department fresh air mask for underwater rescue through by-passing the demand valve.

Mr. J. R. Hill of the Grinnell Sprinkler Company of Providence with the assistance of the North Scituate, R. I. Fire Dept. showed the fire fighters a number of new "Flamebuster" nozzles including new external impingement non-clogging high velocity fog nozzles still in the pilot model stage and also a fog nozzle applicator especially designed for forest fire work. Another new non-clogging fog nozzle that excited interest was one designed by Mr. J. F. Sautter of Voluntown and demonstrated by that department under Chief Wm. H. Kaufman.

A number of portable pumps were in operation including the new pump by McCulloch Motors Corp. of Los Angeles. While this pump (rated to deliver 101 gpm at 60 lbs. pressure) does not appear to meet certain requirements in the NFPA-IAFC tentative minimum standards for portable fire pumps, it attracted much attention because it weighs only 57 lbs.

For the 10th consecutive year Willard Hall of the Woonasquatucket Valley Firemens League was master of ceremonies of the Tri-State Meet. However, following tradition, each fire department or participating agency put on its own demonstration. A unique feature of "Tri-State" is that there is no organizational control other than informal guidance by the chairman.

(Below, at left) Navy training crew from Newport, R. I., demonstrated two new "handie-billie" portable pumps each capable of supplying two 2½-in. lines or six 1½-in. lines. **(Center)** A member of the Greenville Fire Department rescue squad demonstrates use of Scott Air-Pak in underwater rescue. **(Right)** A 57 lb. McCulloch portable pump taking suction from a 300 gallon Harodike portable canvas water tank supplied three ⅞-in. tips through three 50-ft. lines of forestry hose.

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Highlights of the 79th IAFC Conference

NEARLY 2000 fire chiefs and other persons interested in the fire service attended the 79th Annual Conference of the International Association of Fire Chiefs in Boston, Massachusetts, August 25–28. The Hotel Statler was headquarters for the four-day meeting.

The following chiefs were elected as officers of the IAFC for the coming year: Chief George R. McAlpine, Oklahoma City, Oklahoma, President; Chief Henry G. Thomas, Hartford, Connecticut, First Vice President; Chief C. G. Burnett, Ottawa, Ontario, Second Vice President.

A number of the chiefs and their guests took the opportunity to pay a visit to the NFPA Executive Offices. They also had occasion to "size up" the Boston Fire Department (see FIREMEN for August, 1952) since all of the fire stations in the city held "open house" during the conference. Fire Commissioner Michael T. Kelleher, Chief John V. Stapleton, and Gerald J. Harrington headed the reception committee of the Boston Fire Department for the conference. Members of the Boston Fire Department were most hospitable in anticipating the needs of fire service representatives.

The active program began on Monday morning with a breakfast at the Sheraton Plaza Hotel, where Mayor John B. Hynes of Boston delivered a welcoming address. Then the fire chiefs and other guests marched to the Hotel Statler for the opening session and the impressive annual memorial services.

(Left to right) Fire Chief Peter Loftus of New York City, Fire Commissioner Fred Madden, III, of Norwalk, Connecticut, and Fire Commissioner Michael T. Kelleher of Boston (operating device) inspect the initial installation of the fully automatic fire alarm system which was installed in Boston's historic Old North Church during the IAFC conference as a gesture of good will by the Edwards Company of Norwalk, Connecticut.

A view of the manufacturers' displays of apparatus and equipment in the First Corps Cadet Armory opposite the Hotel Statler.

The business and technical sessions of the conference began Monday afternoon and continued through the rest of the week. As the first speaker, R. M. L. Russell, Assistant Chief Engineer, Factory Insurance Association, Hartford, Connecticut, analyzed the fire problems confronting industry and public fire departments. He stated that "the hour has come when industry and the fire services must get together and work diligently on a program, combining forces and exchanging knowledge on fire problems so that when an emergency strikes they can fight fire together with peak speed and efficiency." He also stated that the initial step is to bring together "industry with its particular knowledge of the hazards and protective safeguards, augmented by its own manpower and special equipment, and the public fire services, staffed by men trained and well equipped to do the job, with a mutual aid plan of virtually unlimited assistance controlled by two-way radio."

James J. Duggan, Superintendent of Fire Protection, Carbide and Carbon Chemicals Company, South Charlestown, West Virginia, discussing means by which fires can successfully be controlled and extinguished, and explained the use and limitations of fire extinguishing mediums, including water, vaporizing liquid, dry chemical, carbon dioxide, foam, and wet water.

Kyle P. Laughlin, Director, Fire Services Division, Federal Civil Defense Administration, Washington, D. C., outlined the present status of the fire program in Civil Defense. He stated that although 3 million Americans had volunteered for roles in civil defense activities, reductions of appropriations for personnel and resources place greater emphasis on the need for action in the individual states and municipalities. States are being encouraged to place orders for state procured equipment with the "lead" time on fire equipment now being about eight months. Under the allocation plan the thirty states that have critical areas were the ones to receive the 1952 allotment for fire equipment.

A technical session devoted to firemen's training entitled "Meet the State Training Program" had Chief B. Richter Townsend, Bureau of Fire, New York Division of Safety as the presiding chairman. Chief Rudolph Swanson, Chairman of the New York State Advisory Board and retiring president of the IAFC, J. Palmer Harcourt of the New York Division of Safety, and a "panel of experts" evaluated firemen's training through state, county, and town organizations.

Other speakers during the conference included: Chief Waldo Merill, Council Bluffs, Iowa, Fire Department; Edward N. Montgomery, Deputy Chief in Charge of Fire Prevention of the Boston Fire Department and Chairman, NFPA Fire Marshals' Section; Richard C. Steinmetz, Chief Special Agent, Mutual Investigation Bureau, Chicago, Illinois; Arthur L. Thornton, Chief, Protective Equipment Branch Scientific and Technical Equipment Division, Department of Commerce, Washington, D. C.; J. L. Risinger, Assistant Manager, Claim and Safety Department, Socony-Vacuum Oil

(Continued on page 22)

NFPA Member Departments

Malverne, New York, Fire Department

CHIEF Victor J. Bliden, Assistant Chiefs Willard J. Colwell and B. Harold Holmes, Jr., and Secretary Walter Fallows, Jr., are the presiding officers of this volunteer fire department of 93 active fire fighters. The department has an active training program and participates in many local conventions and contests. Shown above are members of the Malverne and Rockville Center Fire Departments in aerial ladder demonstrations during the recent 4th Battalion Tournament held at Lynbrook, New York.

Members of the Malverne Fire Department protect a community of 10,000 population and an area of 3 square miles. The department has one fire station which houses a 1950 American-LaFrance 750 gpm pumper, a 1948 American-LaFrance 75-ft. aerial, a 1938 Seagrave 600 gpm pumper and a 1928 Seagrave 500 gpm pumper.

The department currently sponsors a drum corps and a Little League baseball team.

Escalon, California, Volunteer Fire Department

THE Escalon Volunteer Fire Department is headed by Chief Merral Clark, Assistant Chiefs Tony and G. Victor Gonzales, and Secretary Harry M. Carlson. The 20 active fire fighters protect a business and residential area of 64 square miles and 2500 population. Apparatus consists of a 400 gpm American-LaFrance triple combination pumper with a 300-gallon tank and for rural use a 500 gpm triple combination pumper with a 350-gallon tank and a 150 gpm booster pump. The department plans to purchase another 500 gpm pumper with a 750-gallon tank for use in outlying areas.

Shown above is the new fire station and some of the members of the department. In the picture at right Assistant Chief Victor Gonzales and Fire Marshal Arthur E. Buss demonstrate a resuscitator at a 4H fair.

For rescue work the department uses a station wagon owned by one of the members and equipped with an E & J resuscitator, stretcher, and first aid equipment. All members have received Red Cross First Aid training. In addition, members participate in two 15-hour courses of training each year, conducted by a state itinerant instructor.

Funds for maintenance of apparatus and purchase of new equipment are raised by taxes, while other funds are obtained through an annual dance conducted by members of the department.

Each man who earns a total of 100 points (1 point for each fire, drill, meeting, or special duty attended) is awarded a complete set of turn-out clothing, paid for from a fund created by Escalon's Board of Commissioners. All members of the department have compensation insurance under the State Compensation Insurance Fund.

From Bus to Booster Truck

MEMBERS of the Clayville, New York, Fire Department, under the direction of Chief Alfred Jones, recently converted a 1939 GMC bus chassis into this useful booster wagon. A 500 gpm Hale skid pump powered by a 6-cylinder Chrysler motor was installed, together with a 500-gallon tank, two pre-connected 1½-in. lines with fog nozzles, and 500 feet of 2½-in. hose connected to 1½-in. lines by wyes. There are also a 110-volt auxiliary lighting plant, 2 Scott Air-Paks, an inhalator, ladders, and extinguishers. The booster wagon also has a two-way radio operating on the Utica mutual aid frequency.

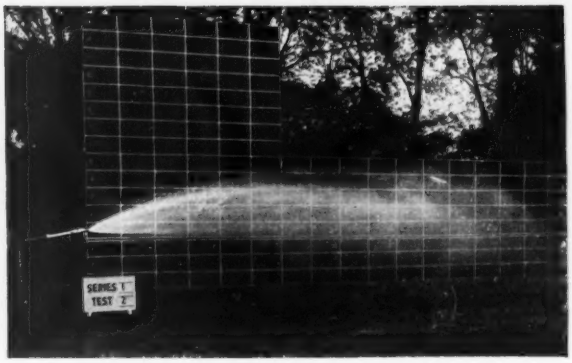
Just Off the Press!

"Studies of Fire Department 'Fog' or Water Spray Nozzles"

FIRE fighters of every status will find valuable information in the new publication with the above title. Bound in maroon leather grain paper cover, 8½ by 11 inches in size, the 44-page report has 196 photos showing various fog nozzle patterns under different pressures. Clear and concise tables provide illuminating evidence of behavior of most of the major "name brand" fog nozzles in 1-, 1½-, and 2½-in. sizes operating at conventional pressures.

A preliminary report on the studies appeared in the September, 1952, issue of FIREMEN. A group representing the NFPA-IAFC Committee on Fire Department Equipment met at the proving grounds of the American-LaFrance-Foamite Corporation near Elmira, New York, to conduct the studies. The final report was approved for publication by the Committee on Fire Department Equipment meeting at the IAFC Conference in Boston, August 26.

"Studies of Fire Department 'Fog' or Water Spray Nozzles" will permit fire officers and pump operators to provide effective pump and nozzle pressures to obtain the best results. It will also help fire departments to plan hose layouts that will supply each type or size of fog nozzle most effectively. For example, one type of 1½-in. nozzle at a 30 degree cone setting discharges 51 gpm at 100 lbs. and another nozzle at the same setting and pressure gives 120 gpm. Obviously pump pressures and friction losses vary considerably and fire fighters must know this to obtain best results with these nozzles.



Sample photograph from the "Studies" shows how horizontal and vertical ranges of fog patterns were determined by use of a backdrop.

Readers desiring to obtain copies should write to the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts. Price is only $1.00 per copy.

The numerous photographs in this publication offer evidence of range and patterns that can be obtained from the various nozzles.

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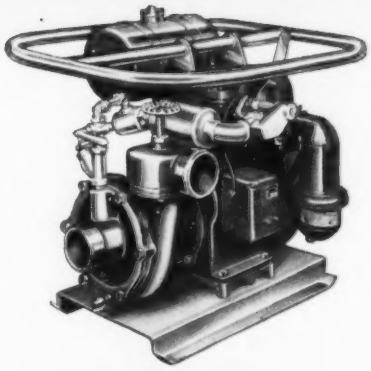
Useful? You bet it's useful! And more than ever, now, because recent design improvements have *increased* engine horsepower and *reduced* total weight. You get greater pressure – greater water volume delivered – and easier carrying too!

As a booster carried on your apparatus, it can help you out of tight spots! From pond, stream or cistern, the 3XD delivers enough water to the pumper, under normal conditions, to supply two 1½" hose lines with ½" nozzles, or one 2½" line with ¾" nozzle. Left at the fire to pump out a basement, it frees your pumper to return to quarters.

Highly popular with rural departments, the 3XD is equally valuable in the city for civil defense, flood recovery, etc. Why not get complete details?

Write for American-Marsh Bulletin 8120.

Use the 3XD as a booster for your pumper — or to pump out basements. Handles dirty water without serious damage.



AMERICAN-MARSH PUMPS
BATTLE CREEK MICHIGAN
In Canada:
American-Marsh Pumps (Canada) Ltd., Stratford, Ont.

Proposed Changes in National Electrical Code

THE NFPA has released a 226-page pamphlet detailing the Proposed Amendments to the 1951 National Electrical Code (NFPA No. 70-PR1). This should be of intense interest to Electrical Inspectors connected with Fire Departments. Copies are available from the Association for $2.00 each.

Readers will find this publication particularly helpful as comments on the proposed changes are included giving, in many cases, the pros and cons of the suggested revisions. The pamphlet has been printed to afford opportunity for all persons interested to comment on the proposed new rules, with December 1, 1952 established as the deadline date for comments to be received.

Some of the significant proposed changes follow.

Mandatory requirements are planned for temperature limiting devices on flatirons and electric water heaters. A new section has been drafted on fixed electrical space heating equipment.

Significant changes are proposed for "Hazardous Locations." Recognition has been given to positive pressure ventilation arrangements to reduce the area considered hazardous when such ventilation is safeguarded by duplication of equipment or interlocked with the electrical supply. "Hazardous atmospheres" are more closely defined. Complete revision has been accomplished on Article 510 for commercial garages, residential garages, aircraft hangars, gasoline service stations, bulk plants, paint, lacquer and similar finishing process areas and where combustible anesthetics are used.

There are also complete revisions proposed for Article 530 on Motion Picture Studios and Article 620 on Elevators, the latter article having been broadened to include escalators and dumbwaiters.

The draft of the proposed change of Article 700 on Emergency Lighting and emergency power systems will probably be of greatest interest to many fire departments. The new rules tell *how* such systems are to be installed, leaving to other NFPA standards and city and state codes, *where* and *when* such facilities are required.

Pyrene Playpipe, pickup tube, hose adapter, 5 gals. Pyrene Air Foam Compound—just $63. Everything you need!

One playpipe enables you to put out flammable liquid fires, bad spill fires. Multiplies fire-fighting capacity at locations where there is only a limited water supply.

It takes just

$63

to modernize a fire truck

with a Pyrene® AIR FOAM PLAYPIPE

A Pyrene* Air Foam Playpipe multiplies the efficiency of every fire truck. Just ask any of the thousands of fire departments now using them! With one gallon of Pyrene Air Foam Compound and 20 gallons of water, the playpipe produces 350 gallons of fast-acting foam. It's *sure death* to both flammable liquid fires and those in ordinary combustibles. That means the playpipe adds important extra ammunition to every fire department—for it equips each truck to cope instantly with blazing oil, gasoline and other flammable liquids. It is indispensable, too, for fire fighters that may be called to spots where water supply is limited. Yet with all these advantages, the total cost of each unit, consisting of playpipe, 5 gallons of foam compound and adapter, is only $63. Put a playpipe on *every* truck you have. Write for name of the Pyrene jobber nearest you.

*T.M. Reg. U.S. Pat. Off.

PYRENE MANUFACTURING COMPANY

587 Belmont Avenue **Newark 8, N.J.**

Affiliated with C-O-Two Fire Equipment Co.

Good Stop with "Indirect Application"

(*Continued from page 9*)

followed by large quantities of condensing steam and smoke. This line was employed here for about 3 minutes.

Meanwhile the two lines with NAP nozzles were taken aloft and applied to the cleaner room on the second floor. A fierce fire was burning in this room but a quick knockdown was achieved with fog.

After the primary fire was knocked down in the headhouse shaft a booster line was used to overhaul the small fires in the grain dust and heavy timbers. Additional 2½-in. lines brought into position from other responding apparatus were not needed.

THIS fire had been pre-planned in our fire school several times. Fire inspections of the elevator had been made twice each year for many years. The knowledge we obtained of the building and its hazards together with a pre-planned strategy of attack was a deciding point in our favor when the fire occurred. The method of attack employing fog and atmospheric displacement was mainly responsible for the quick extinguishment with a small quantity of water.

It is noteworthy that no grain was lost because of fire or water, nor was any injury sustained during the fire fighting. The plant was scheduled to resume operations about 10 days after the fire occurred.

79th IAFC Conference

(*Continued from page 18*)

Company, New York, N. Y.; Chief Walter W. Stephen, Fire Department, Monsanto Chemical Company, Anniston, Alabama; Chief Lorenzo J. Jones, Duluth, Minnesota, Fire Department; George J. Richardson, Secretary-Treasurer International Association of Fire Fighters, Washington, D. C.; and H. F. Reinard, Secretary, International Acetylene Association, New York, N. Y.

In addition to the formal program the fire chiefs and their guests were offered entertainment including a sight-seeing tour of the historic points of interest in Boston, a moonlight sail around Boston Harbor, a luncheon and tour at the Gamewell Company in Newton Upper Falls, a "get acquainted party" and the annual banquet.

One of the interesting exhibitions prepared by members of the Boston Fire Department was a demonstration showing the comparison between an old hand operated pumper, a 1900-model steam pumper, and new equipment. The demonstration was conducted by Deputy Chief John Crehan, Drillmaster. The Fire Department Band provided a musical setting for the occasion and a drill team also gave an exhibition of pompier ladder drills and rescue work on ladder staging erected between two 85-ft. aerials.

"Attacking and Extinguishing Interior Fires"

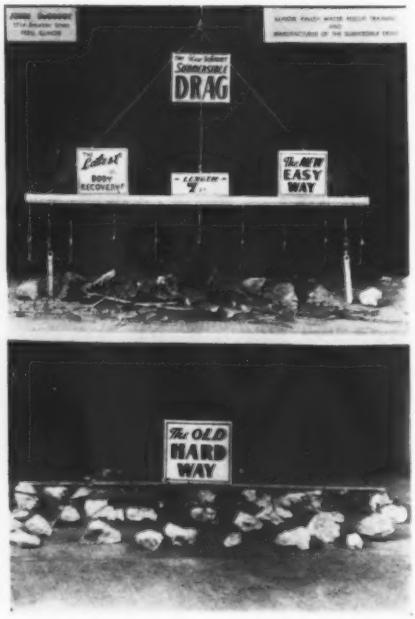
134 pages 71 illustrations

$3.75 per copy

Write To:

National Fire Protection Association
60 Batterymarch Street
Boston 10, Mass.

DeGroot Submersible Drag



NEW PRINCIPLE MAKES BODY RECOVERY FASTER *and* EASIER

FOR FIRE DEPARTMENT RESCUE TEAMS

Assure your community of having the best grappling equipment. Here is a patented grappling device that (a) does not snag onto every little object, (b) can be pulled with two fingers and (c) does not skip over an object as large as a human body.

Anyone can easily operate the new DeGroot Submersible Drag. Adjustable weights at each end of a hollow airtight metal tube keep hooks off the bottom, prevent snags and permit drag hooks to glide easily at a fixed distance from the bottom. Compare the DeGroot Submersible Drag at top of photo with the old method of scraping the bottom surface.

Complete price, including easy-to-follow instructions, **$49.50; plus express.** Literature free on request.

CAPTAIN JOHN DeGROOT - 1714 Brewster St., Peru, Illinois

OHIO State Fire Marshal Harry J. Callan passed away at the Youngstown North Side Hospital on August 11. He had a long career in the fire service. He began service with the Youngstown Fire Department in 1907 at the age of 21.

He was appointed Chief of the Youngstown Fire Department in 1927 and continued in that capacity until his retirement in 1937. He then served for a year and a half as First Assistant State Fire Marshal, then served five and one-half years as Ohio State Fire Marshal. He was an active member of the NFPA Fire Marshals Section and was a leader in fire prevention and rural fire protection activities.

"Fire Prevention for Secondary Schools"

THE International Association of Fire Chiefs has published a valuable publication for the teaching of fire prevention for high school students. Titled "Fire Prevention in the Secondary Schools" the 63-page book was prepared by the University of Southern California Curriculum Laboratory under the direction of C. C. Crawford, Professor of Education.

Copies of the publication may be obtained from IAFC Headquarters, Hotel Martinique, Broadway at 32nd Street, New York 1, New York. Price is $1.50 per copy.

Dangerous Sunshine

A LETTER to FIREMEN from Mr. Clair M. Loughmiller, Sr., of the Morningside, Maryland, Volunteer Fire Department, illustrates the need for fire detection devices and other precautions against fire even in a carefully maintained fire station. Mr. Loughmiller recently entered the Morningside station with Chief Gerald A. Glaubitz and immediately noticed a strong odor of burning rags. Investigation revealed that the odor was coming from a neatly folded pair of coveralls which was beside a half-gallon jug of battery water. The sun was shining brightly and the jug of water apparently acted as a magnifying glass for the heat had penetrated through several layers of the cloth. Other combustibles in the immediate vicinity could have made a serious fire except for the discovery.

CAIRNS

The "CLIFTON"
No. 900
"Flint-Flex" Plastic

The "SENATOR"
No. 350
One-Piece Aluminum

Write for Catalog 340

Cairns & Bros., Inc. Allwood, Clifton, N. J.
Outfitters to Firemen Since 1836

HELMETS

You bet I specify
MIDWESTERN Protective Clothing
...my men deserve the BEST!

PROTECTION
COMFORT
SERVICE

There is no substitute for the extra protection, built-in comfort and longer wear you get by specifying Midwestern clothing. In our vast selection of rubber materials you will find the type of fabric exactly suited to your climate and needs. You can count on the softness and flexibility of the high-grade materials used to meet your most exacting requirements for lasting comfort and rugged service.

Due to government requirements for Midwestern Protective Clothing, prompt delivery will be assisted if you place your order early. For complete information, have your Midwestern dealer show you our full line. A letter to the factory will also bring you literature and material samples for your inspection.

MIDWESTERN MFG. CO., Mackinaw, Illinois
Manufacturers of the Famous MACKINAW Coats

Industrial Fire Protection

Piled Pallets Adjacent to Building

THE fire shown at right began innocently enough in a grass field adjacent to the property of the Royal Canning Corporation, Ogden, Utah. Employees eating lunch noticed the fire in the grass but apparently nobody thought it important enough to call the fire department. When next seen the fire had involved the piled wooden pallets and was burning briskly.

The pallets were stacked in tiers 12 to 15 ft. high over an area of approximately 5,000 square feet. An 18 mph wind quickly spread the fire to a nearby warehouse then to a cannery equipment storage building. These buildings were fully involved when fire apparatus from the Ogden City Fire Department arrived.

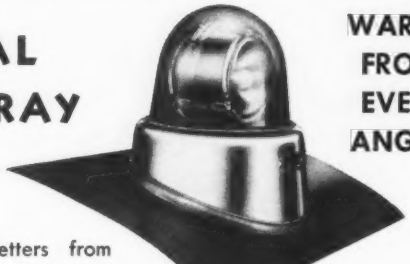
Fire fighters used four 2½-in. lines, three 1½-in. lines and a turret nozzle but could only concentrate on protecting exposures. Estimated total fire loss was $218,600.

NFPA No. 47 — Standards for Retail Lumber Yards makes a number of recommendations for the piling and storage of lumber to minimize fire hazards. Since the danger of grass fires is relatively high the Standard suggests that the bottoms of lumber piles be of noncombustible material, preferably of concrete piers, or railroad iron. The minimum height of bottoms should be not less than one foot above ground.

Another suggestion is that weeds shall be kept down throughout the entire yard and shall be sprayed as often as needed with a satisfactory weed killer or cut or grubbed out.

The VOLUNTEERS *volunteer* their praise!

FEDERAL BEACON RAY



WARNS FROM EVERY ANGLE!

Scores of unsolicited letters from volunteer firemen praise the Beacon Ray as the finest visible signal they've ever used. Here's why! the Beacon Ray *commands* caution from EVERY ANGLE! 2 powerful, sealed-beams rotate 360° even when apparatus is standing still! As more and more amateurs and "pro's" specify Beacon Ray, this sweeping flash of intense light becomes THE symbol of the fire fighter . . . the warning light you too should use.

SPECIFY THE FINEST— FEDERAL BEACON RAY LIGHTS— FEDERAL COASTER SIRENS

Write today for Emergency Signals Bulletin

FEDERAL ENTERPRISES, INC.

Formerly: FEDERAL ELECTRIC COMPANY, INC.

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Burlap Bag Factory

POOR housekeeping, open fire doors and delay in notifying the fire department led to rapid spread of fire in this burlap bag factory in Philadelphia, August 12. Sprinkler protection covered about 55 percent of the area but a weak water supply limited protection and fire fighting. Fire spread through unsprinklered portions and open elevator shafts and stairs. Philadelphia fire fighters made a good stop in confining fire to the building of origin, despite extremely close exposures. (*Associated Press Wirephoto*)

Safeguard OUR NATION'S INDUSTRY

Dependable fire protection for defense and civilian industries is vital, and the fire signaling system is the first line of defense against fire. Insist on GAMEWELL Fire Signaling Equipment — it has proven reliable, efficient, and durable.

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REG. U.S. PAT. OFF.

The GAMEWELL COMPANY
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IN CANADA: NORTHERN ELECTRIC COMPANY, LTD., BELLEVILLE, ONTARIO

Globe DURABLE FIREMEN'S Suits

when you invest in quick-hitch suits buy the BEST— buy GLOBE!

Before you buy ANY firemen's clothing, see the GLOBE line. We'll let you be the judge of their many practical features including the new Globe Neoprene* Interlinings. You'll find them durable; they'll give you more real lasting wear and protection than any suit on the market. Clip out the corner of this ad and get the facts. Do it now, today.

Gentlemen: Dept. FM

Please send me, without obligation, your FREE catalog and samples of materials used in the Globe Suits. Also the name of the Globe Dealer nearest me.

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Address.....

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PITTSFIELD, N. H.

*Made with 100% DuPont Neoprene

TRADE MARK

That's right, tools aren't needed to recharge an Ansul Dry Chemical Fire Extinguisher. Nor is it necessary to send the extinguisher away for recharging. After use, even the most inexperienced operator can quickly recharge an Ansul Dry Chemical Fire Extinguisher. This assures you of continuing fire protection.

Ansul Dry Chemical Fire Extinguishers are approved for Class "B" and Class "C" fires by the Underwriter's Laboratories Inc., Factory Mutual Laboratories, and the U. S. Coast Guard. Field experience has proved Ansul Extinguishers are your best protection for flammable liquid, gas and electrical fires.

ANSUL CHEMICAL COMPANY • **MARINETTE, WISCONSIN**

Dates to Remember

Illinois: The 62nd Annual Convention of the Illinois Firemen's Association, Inc., will be held at Peoria, October 28–31. Headquarters will be at the Hotel Pere Marquette.

Kansas: The Annual Kansas Fire School will be presented by theUniversity of Kansas and other cooperating agencies at Hutchinson, October 21–24.

Nebraska: The Nebraska State Volunteer Firemen's Association will hold their 70th Annual Meeting at the Hotel Fort Kearney, Kearney, Nebraska, October 20-22. For information contact Russell D. Salak, Secretary-Treasurer, P.O. Box 312, Schuyler, Nebraska.

Pennsylvania: The Fall meeting of the Keystone State Fire Chiefs Association will be held at Hyde Park, Pa., November 15. For information contact Lew Atkinson, Secretary of the Association, Malvern, Pennsylvania.

Directory of State Fire Coordinators

THE NFPA Fire Marshals' Section has furnished the information from which a directory of the fire marshals, fire coordinators and civil defense directors of the states and territories of the United States and the provinces of Canada has been compiled. This has been prepared in a limited edition, 16 pages, 4 by 9 inches in size. As long as supplies last, reader may have copies for $1.00 each.

Membership Report

READERS of FIREMEN are requested to notify the NFPA Executive Office if the magazine fails to be delivered properly. Until such notification is received any mailing errors or abuses may continue indefinitely. Readers following serialized articles may forever miss one of the parts if a particular issue is expended before such notification is received.

NFPA Welcomes:

California: Garden Grove Fire Protection District, Garden Grove.

Indiana: North Manchester Fire Department, North Manchester.

New Jersey: Laurel Springs Fire Department, Laurel Springs.

New York: Canaseraga Fire Company, Canaseraga; Dundee Volunteer Fire Department, Dundee.

Ohio: Whitehall Fire Department, Columbus; Miami Township Fire Department, Yellow Springs.

Wisconsin: Cassville Volunteer Fire Department, Cassville.

Qualifications for Fire Instructors

THE New York State Department of Civil Service has established minumum qualifications for the position of County Fire Instructor in the State of New York according to information published in the *Siren* issued by the State Bureau of Fire Mobilization and Control.

a. Graduation from a standard senior high school and five years of fire fighting experience, of which either two years shall have included supervision over subordinate employees, or one year of experience in the conduct of a fire control program; or

b. Seven years of the above experience, including two years of supervision over subordinate employees, or one year of experience in the conduct of a fire control training program; or

c. A satisfactory equivalent combination of the foregoing education and experience.

Emergency Assignment Plan

CHIEF George R. McAlpine, Oklahoma City, newly elected President of the International Association of Fire Chiefs, reported an interesting plan, in effect in his community, for assigning fire apparatus under abnormal emergency conditions. The plan was brought about by the fact that a slight earthquake resulted in numerous fire alarms which tended to strip the city of its normal protection. Accordingly, an emergency assignment plan has been evolved which sets up 8 fire fighting districts each under the command of a chief officer in place of the normal 3 districts in the city.

When the reduced assignments are necessary, due to an emergency, 1 piece of fire apparatus is dispatched to each call under the control of the emergency district officers. This is in place of a normal first alarm assignment of several pumpers and ladder trucks. Additional equipment is called as needed by specific order of the fire officers in each zone. This procedure is intended to make it impossible for panicky residents to deplete the fire force through needless alarms.

SENSIBLE

FOR ALL YOUR HOSE CONNECTIONS

improved

SENSIBLE LUG COUPLINGS
(ROCKER LUG TYPE)

insure

QUALITY *and* **SAFETY**

The improved Powhatan "Sensible-Lug Couplings" are precision tooled and manufactured of only the best high-grade materials. They set a standard that is "tops" in this specialized field of fire-fighting equipment. The curved surfaces of this modern coupling enable the hose to glide easily over all obstructions, thus preventing snagging, an important safety and economical feature appreciated by those who know.

SPECIFY "SENSIBLE" LUG COUPLINGS ON YOUR NEXT HOSE ORDER

POWHATAN BRASS *and* **IRON WORKS**
RANSON, WEST VIRGINIA
Phones 93 & 94 Charles Town West Virginia
Established 1892

Fight Brush Fires From Moving Truck with a HALE Type FZZ PORTABLE PUMPING UNIT

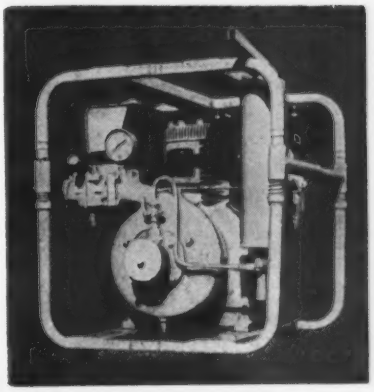
Picture below shows fire-fighter handling stream from a Hale Type FZZ Portable Pumping Unit mounted on a moving truck. An FZZ can be mounted permanently on truck or carried as a portable unit for pumping into or *from* booster tank. This portable arrangement is extremely useful both for fighting brush, field or forest fires while in motion; or pumping from pond, stream or well direct.

An FZZ will supply from draft, 60 U. S. Gallons per minute at 90 lbs. pump pressure and up to 150 U. S. Gallons per minute at 30 lbs. It can supply two capable fire streams through 1½" hose lines using nozzle tips up to ½".

A frame-mounted FZZ (with carrying handles turned in) is pictured at right. Unit is also available mounted on two wheels or on rubber-cushioned steel channels.

Note: Discharge adapter can be supplied for use with 2½" hose.

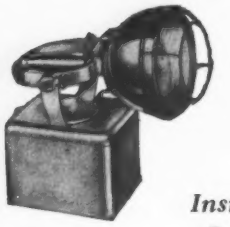
Write today for new FZZ Folder
Let us know if you want a demonstration



HALE FIRE PUMP COMPANY
Conshohocken, Pa.
● Fire Pumps in All Standard Capacities

Nip Brush Fires in the Bud with a HALE FZZ

CARPENTER LIGHTS



Instantly Ready

SEARCHMASTER

The Chief picks up his Portable SEARCHMASTER. He's inside the building in time to handle most fires before they get to the dangerous stage, and before floodlights can be set up. All the light you want at the snap of your thumb. Patented handle points anywhere *without cocking arm.* Rechargeable.

ALL KINDS OF EMERGENCY AND SPECIAL LIGHTS FOR CARS, PUBLIC UTILITIES AND INDUSTRIES.

CARPENTER LEADS THE WORLD IN PORTABLE AND EMERGENCY FLOOD and SEARCHLIGHTS

Write for Catalog showing many more Emergency Lights.

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BOSTON-45-SOMERVILLE, MASS.

FIRE and POLICE UNIFORMS

SHIRTS
BADGES
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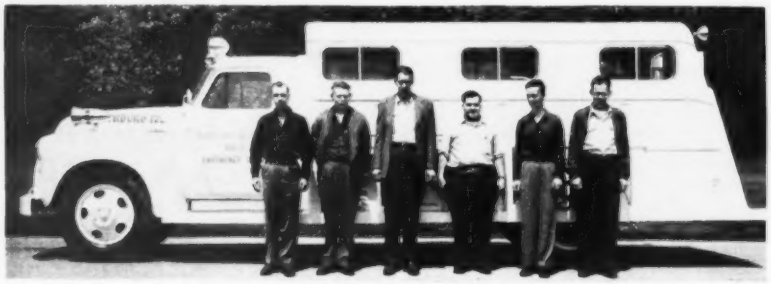
Shoulder Patches Awarded at Maryland Fire School

ROBERT C. BYRUS, Director, Fire Service Extension, University of Maryland, and member of NFPA Committees on Firemen's Training and Fire Department Equipment, forwarded the above picture to FIREMEN. It shows the shoulder patch emblems awarded to fire fighters who complete courses at the Maryland Fire School.

At left is the emblem awarded to those who complete a Basic course of sixty hours of instruction, consisting of twenty sessions of three hours each. In the center is the emblem awarded for completion of the advanced course of twenty-three sessions of three hours each, totalling sixty-nine hours. At right is the Section III emblem awarded for completion of fifty-seven hours of instruction in nineteen three-hour sessions.

In the past fiscal year 1,212 Basic award cards were issued for satisfactory completion of requirements. A total of 1,785 fire fighters enrolled for this course. In the Advanced classes 160 awards were issued with an enrollment of 207, while 61 awards were made to an enrollment of 67 students in Section III classes.



Rescue Truck for Johnsonburg, Pennsylvania

THIS rescue truck recently was delivered to East End Hose Company No. 3, Johnsonburg, Pennsylvania. It is completely equipped with lifesaving devices and fire-fighting apparatus, including a resuscitator, an inhalator, oxygen masks, stretchers, fog-foam system, booster pump, and a 175-gallon tank, a 110-volt generator system and other equipment. The body contains 12 cabinets, has seats along the sides and front, bus-type sliding windows, body heater, and an insulated ceiling.

Members of the East End Hose Company are shown above. (Left to right): Joseph R. Stubber, President; Sidney R. Bouse, Treasurer; Elbert W. Gay, Secretary; Philip B. Hoh, Maintenance Foreman; Thomas Mills, Assistant Maintenance Foreman; and Robert Zilkofski.

The complete body unit was built and equipment furnished by Sharpsville Steel Fabricators, Inc., Sharpsville, Pennsylvania.

George H. Kington Associates

FORMER Deputy Chief George H. Kington, recently retired as Fire Marshal of Philadelphia, announces organization of George H. Kington Associates serving as fire prevention, fire protection, fire investigation consultants located in the Dewey Building, Philadelphia 7, Pennsylvania.

NFPA Inspection Manual

336 pp. $3.00 per copy

National Fire Protection Association
60 Batterymarch Street, Boston 10, Mass.

Radio System in Charles County, Maryland

A FEW years ago there was only one fire company in Charles County possessing modern fire equipment and men training under the University of Maryland's Fire Service Extension program. Now there are nine volunteer fire departments with many of the firemen having taken the Basic training course. Three fire companies have men who have taken one or more Advanced courses.

All nine companies have demonstrated appreciation of the value of coordinated service against the hit-or-miss rivalry system, by joining together in a county volunteer firemen's protection association. All are cooperating on a volunteer basis and maintain an around-the-clock desk watch service for the receipt and transmission of fire alarms. This service, and the willingness of the companies to respond to alarms and relocation orders according to a prearranged running system, is largely responsible for gaining financial support from the County Commissioners for setting up an ultra modern radio alarm system.

In this system fire alarms within the county are sent to a central dispatching point, which is manned twenty-four hours a day on a volunteer basis. The operator at the central dispatching point can sound the alarm siren at any company station in the county by merely pushing a button. This is a great time saver over the old system of using dial telephones and calling numbers until someone could be found at home.

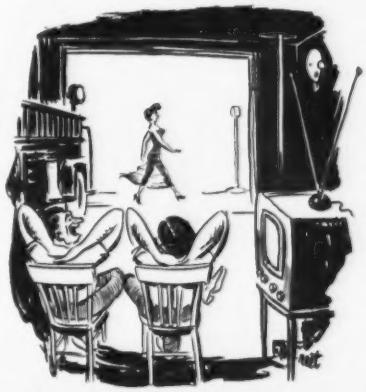
The siren alarm is sounded by radio impulses from the central dispatching point. This eliminates costly telephone tolls. The first fireman to reach his fire company quarters, after hearing the alarm, gets the location and type of emergency by radio. When two or more companies have been called, all can pick up directions simultaneously. In case of power failure, auxiliary motors cut in automatically to assure uninterrupted communications.

Any firemen planning county-wide radio communication should be sure to examine the facilities available in Charles County. (*From "Fire Service Bulletin," University of Maryland.*)

Emergency Traffic Signal Controller

THE August, 1952, issue of "Fire Protection Review," edited by Mr. G. F. D. Pratt and published by Benn Brothers, Limited, Bouverie House, Fleet Street, London, E. C. 4, England, contains an interesting description of a new "Electric Ear" that utilizes fire apparatus sirens to turn traffic lights to green upon the approach of fire apparatus. The innovation is credited to Chief Fire Officer H. Jones of Doncaster, England, who enlisted the assistance of Mr. N. E. Smith of Smith Brothers Wholesale, Ltd., Doncaster, manager of a wholesale electrical engineering concern. The idea had the approval of the municipality and met the requirements of the Ministry of Transport which insisted, among other things, that the device should operate from vehicle sirens only at a specific frequency of sound and that the receiving "Ear" should be arranged to be responsive to a sustained volume emitted at a predetermined frequency by a vehicle siren.

The emergency audio traffic signal controller is protected by British patent and consists of a weather-proof microphone arranged to be directional. In the same unit is a small preamplifier the output of which is fed to apparatus mounted at the main traffic signal controller. The distance at which the microphone is mounted from the signal is determined by the type of crossing and the speed of approach. During the time that traffic lights on intersecting streets are red an illuminated red sign indicates that fire apparatus is approaching and shows the apparatus driver that the signals are set for safe passage.



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BETTER HOSE CARE – WITH

CIRCUL-AIR

THE AIR CONDITIONING

FIRE HOSE DRYER

Circul-Air is the patented, electrically operated hose dryer which circulates prewarmed fresh air through coiled wet hose at the rate of 5 to 6 air changes per minute. It's designed to lengthen hose life, improve the appearance and functional design of new fire houses, and to save floor space and hard work. No other drying method is so fast—so economical—so easy to use.

Circul-Air Dryers have passed the Approvals Tests and are listed by the Underwriter's Laboratories, Inc., Chicago and the Canadian Standards Association.

Write for Catalog TODAY

THE CIRCUL-AIR CORPORATION

575 East Milwaukee Detroit 2, Michigan

Control Critical Situations

with a

SIREN LOUD VOICE

in

- Rescue Work
- Crowd Control
- Search Parties
- Fires & Floods
- Instruction Classes

Portable battery amplifier leaves hands free. Light — only 12 lbs. Compact case. Built-in speaker, crystal mike, cord, batteries and trumpet. Standard batteries last 40 hours with continuous use. Case speaker easily heard in 100 x 100 ft. auditorium. Strong. Low Cost. Free Literature. Write Now.

Only $89.50

with trumpet $119.50

Chest Mike $7.50 extra

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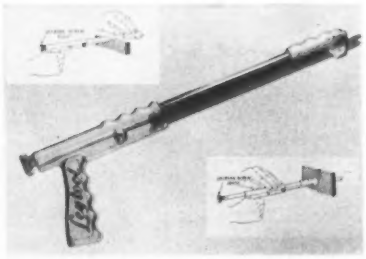
2014 Connecticut Avenue

Washington, D. C.

What's New In Fire Equipment?



New "Endless" Hacksaw

A new type of hacksaw is being distributed in the United States only by Alpha Tool and Supply Co., Box 119, Westwood, New Jersey. Named the "Leytool" the hacksaw allows the operator to saw without being restricted by a frame. The tool (shown above) consists of a spring-loaded plunger with a pistol grip handle and a guide tube which supports a regular 10 or 12 inch hacksaw blade. After sawing penetrates to a depth equal to the width of the blade a locking screw is loosened and the blade is actuated by a spring loaded plunger and sawing may proceed to any depth. The blade can be inserted through holes as small as ½ inch in diameter for emergency sawing operations such as may occur in automobile, train or aircraft crashes. The hacksaw sells for $5.50 each and may be obtained from the distributor at the above address.

Personnel Change

Ansul Chemical Company, Marinette, Wisconsin, announces the appointment of Paul R. Larimer as General Sales Manager in charge of all four sales divisions — fire extinguisher, refrigeration, industrial chemicals and export. This is a new post created by the company to help supervise and coordinate the company's sales expansion. Mr. Larimer formerly supervised the company's government relations program and served as Assistant Manager of the Fire Extinguisher Division. At one time he was co-owner of Thunderbird Sales Corp., Phoenix, Arizona.

Friction, Rubber and Plastic Tapes

A new line of electrical tapes has been introduced by Ideal Industries, Inc., 4110 Park Avenue, Sycamore, Illinois. These include a 4-coated, ravel-free friction tape; a quick fusing, high-dielectric rubber tape; and a plastic electrical tape which provides both insulation and protection against weather and mechanical abuse. The vinyl plastic body of this tape has a dielectric strength of over 8,000 volts. For further information write to manufacturer at the above address for Ideal Bulletin P-1.

Christmas Tree Holder

A tree 9 feet in height may be supported by the Evergreen Christmas Tree Holder manufactured by Republic Stamping and Enameling division of Ekco Products Company, 1949 N. Cicero Avenue, Chicago 39, Illinois. The tree is held in a green enameled seamless steel base that measures 15⅛ in. in diameter and 4⅜ in. high and holds 12 quarts of water. This water supply helps to keep the tree fresh and reduce the fire hazard. The tree holder may be obtained in department stores, toy and specialty shops at $2.95 retail. Further information may be obtained from the manufacturer at the above address.

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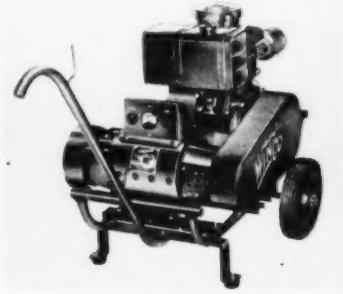

Portable Generator

Wincharger Corporation, East 7th and Division Streets, Sioux City 2, Iowa, announces the addition of a new portable model engine-generator. Model 4500 is designed for a full output at 115 volts, 60 cycles AC. It has a motor starting capacity of 4500 watts, sufficient to operate motors up to 1½HP capacity, a 3000 watt intermittent rating and 2500 watts continuous rating. It can be used to operate portable tools such as cut-off saws, chain saws, masonry saws, concrete vibrators or lights. The model is available with the standard tubular base or a "Speedy-Shift" portable base attachment. Further information may be obtained from the manufacturer at the above address.

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